Claim Amendments

1. (currently amended)   A financial item analysis method, comprising digitally applying character recognition processing to an invalidated MICR line in a digital image of a financial item after the financial item has been sent to a reject pocket of a financial item sorter; and, **digitally processing the digital image of the financial item having an invalidated MICR line to identify MICR characters therein**.

2. (original) A financial item analysis method as defined in claim 1, further comprising processing a check as the financial item through a check sorter implementing the financial item sorter, including sensing the check for a MICR line and characters therein, determining the check has an invalidated MICR line, and creating a digital image of the check, and thereafter performing the digitally applying character recognition processing to the invalidated MICR line in the digital image of the check after the check has been sent to the reject pocket.

3. (original) A financial item analysis method as defined in claim 2, further comprising changing digitally stored MICR line data for the check in response to digitally applying character recognition processing to the invalidated MICR line in the digital image of the check.

4. (original) A financial item analysis method as defined in claim 1, further comprising changing digitally stored MICR line data for the financial item in response to digitally applying character recognition processing to the invalidated MICR line in the digital image of the financial item.

5. (original) A financial item analysis method as defined in claim 1, wherein digitally applying character recognition processing to an invalidated MICR line in a digital image of a financial image includes:

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digitally processing the digital image of the financial item to search for a digital image of the invalidated MICR line of the financial item; and

digitally changing an orientation of the digital image of the financial item in response to at least one failure of the digitally processing of the digital image of the financial item to find a digital image of the MICR line.

6. (original) A financial item analysis method as defined in claim 5, further comprising changing digitally stored MICR line data for the financial item in response to digitally applying character recognition processing to the invalidated MICR line in the digital image of the financial item.

7. (original) A financial item analysis method as defined in claim 5, wherein digitally processing the digital image of the financial item to search for a digital image of the invalidated MICR line of the financial item includes:

using a first MICR font template to identify MICR characters across the length of a selected area of the digital image of the financial item;

detecting a position for a MICR character not identified by the first MICR font template relative to at least one MICR character identified by the first MICR font template; and

in response to detecting a position for a MICR character not identified by the first MICR font template, using a second MICR font template to identify the MICR character in the detected position.

8. (original) A financial item analysis method as defined in claim 7, further comprising changing digitally stored MICR line data for the financial item in response to digitally applying

character recognition processing to the invalidated MICR line in the digital image of the financial item.

9. (original) A financial item analysis method as defined in claim 1, wherein digitally applying character recognition processing to an invalidated MICR line in a digital image of a financial image includes:

using a first MICR font template to identify MICR characters across the length of a selected area of the digital image of the financial item;

detecting a position for a MICR character not identified by the first MICR font template relative to at least one MICR character identified by the first MICR font template; and

in response to detecting a position for a MICR character not identified by the first MICR font template, using a second MICR font template to identify the MICR character in the detected position.

10. (original) A financial item analysis method as defined in claim 9, further comprising changing digitally stored MICR line data for the financial item in response to digitally applying character recognition processing to the invalidated MICR line in the digital image of the financial item.

11. (original) A check processing method, comprising:

transporting a check through a check sorter;

generating electrical signals in response to sensing a MICR line on a check in the check sorter;

generating a digital image of the check in the check sorter;

determining in a programmed computer whether the electrical signals represent a valid or an invalid MICR line; and

in response to determining that the electrical signals represent an invalid MICR line, and off-line from the check sorter and the transporting of the check, digitally processing the digital image of the check to identify MICR characters therein.

12. (original)   A check processing method as defined in claim 11, further comprising determining in the programmed computer whether identified MICR characters constitute a valid MICR line, and if so, digitally changing stored MICR line data for the check.

13. (original)   A check processing method as defined in claim 11, wherein digitally processing the digital image of the check includes digitally changing an orientation of the digital image of the check in response to at least one failure of the digitally processing of the digital image of the check to find a digital image of the invalid MICR line.

14. (original)   A check processing method as defined in claim 13, further comprising determining in the programmed computer whether identified MICR characters constitute a valid MICR line, and if so, digitally changing stored MICR line data for the check.

15. (original)   A check processing method as defined in claim 13, wherein digitally processing the digital image of the check further includes:

using a first MICR font template to try to identify MICR characters across the length of a selected area of the digital image of the check;

detecting a position for a MICR character not identified by the first MICR font template relative to at least one MICR character identified by the first MICR font template; and

in response to detecting a position for a MICR character not identified by the first MICR font template, using a second MICR font template to try to identify the MICR character in the detected position.

16. (original) A check processing method as defined in claim 15, further comprising determining in the programmed computer whether identified MICR characters constitute a valid MICR line, and if so, digitally changing stored MICR line data for the check.

17. (original) A check processing method as defined in claim 11, wherein digitally processing the digital image of the check includes:

using a first MICR font template to try to identify MICR characters across the length of a selected area of the digital image of the check;

detecting a position for a MICR character not identified by the first MICR font template relative to at least one MICR character identified by the first MICR font template; and

in response to detecting a position for a MICR character not identified by the first MICR font template, using a second MICR font template to try to identify the MICR character in the detected position.

18. (original) A check processing method as defined in claim 17, further comprising determining in the programmed computer whether identified MICR characters constitute a valid MICR line, and if so, digitally changing stored MICR line data for the check.

19. (original) A check sorting system, comprising:

a check sorter including a MICR reader and a digital imager for checks transported by the check sorter;

a controller connected to the check sorter, the controller including a MICR interpreter responsive to the MICR reader;

a database connected to the check sorter to provide a repository for digital images of checks provided from the digital imager; and

a digital image analyzer connected to the controller and to the database to analyze by off-line digital processing a check digital image from the database for a check indicated by the MICR interpreter of the controller to have an invalid MICR line, wherein the off-line digital processing occurs after the check sorter has completed transporting the respective check.

20. (original) A check sorting system as defined in claim 19, wherein the digital image analyzer includes means for applying character recognition processing to an invalidated MICR line in the check digital image.

21. (original) A check sorting system as defined in claim 19, wherein the digital image analyzer includes:

a detector to detect a digital image of a MICR line in the check digital image; and

an image orienter, responsive to the detector, to change an orientation of the check digital image.

22. (original) A check sorting system as defined in claim 21, wherein the detector includes:

a first MICR font template to identify MICR characters;

a missing MICR character position detector responsive to the first MICR font template to detect a position of a missing MICR character relative to at least one MICR character identified by the first MICR font template; and

a second MICR font template responsive to the missing MICR character position detector to identify a MICR character in a position detected by the missing MICR character position detector.

23. (original) A check sorting system as defined in claim 19, wherein the digital image analyzer includes:

a first MICR font template to identify MICR characters;

a missing MICR character position detector responsive to the first MICR font template to detect a position of a missing MICR character relative to at least one MICR character identified by the first MICR font template; and

a second MICR font template responsive to the missing MICR character position detector to identify a MICR character in a position detected by the missing MICR character position detector.

24. (original) A check processing method, comprising:

transporting a check through a check sorter including a MICR reader and a digital imager;

generating electrical signals with the MICR reader in response to the MICR reader sensing a MICR line on a check in the check sorter and communicating the electrical signals to a controller including a programmed computer to define a first set of data;

generating with the digital imager a digital image of the check in the check sorter and communicating the digital image to a database to define a second set of data;

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determining in the programmed computer, using the first set of data and a predetermined

set of MICR line validation rules digitally stored in the programmed computer,

whether the electrical signals represent a valid or an invalid MICR line;

in response to determining that the electrical signals represent an invalid MICR line,

transporting the check to a reject pocket preparatory to manual processing of the

check by key entry personnel;

off-line from the check sorter and after transporting the check to the reject pocket but

before a time for manual processing of the check by key entry personnel, digitally

processing, using the second set of data, the digital image of the check to identify

MICR characters therein, including:

digitally converting a digital representation of the digital image from the second

set of data to a common image format;

digitally applying templates to the converted data in the common image format to

determine MICR characters in the MICR line represented in the converted

data;

determining in the programmed computer, using the predetermined set of MICR

line validation rules, whether the determined MICR characters represent a

valid or invalid MICR line; and

writing the determined MICR characters to the first set of data in response to

determining that the determined MICR characters represent a valid MICR

line, thereby obviating the need for manually processing the check by key

entry personnel.

25. (original) A check processing method, comprising:

transporting a check through a check sorter including a MICR reader and a digital imager;

generating electrical signals with the MICR reader in response to the MICR reader sensing a MICR line on a check in the check sorter and communicating the electrical signals to a controller including a programmed computer to define a first set of data;

generating with the digital imager a digital image of the check in the check sorter and communicating the digital image to a database to define a second set of data;

determining in the programmed computer, using the first set of data and a predetermined set of MICR line validation rules digitally stored in the programmed computer, whether the electrical signals represent a valid or an invalid MICR line;

in response to determining that the electrical signals represent an invalid MICR line, transporting the check to a reject pocket preparatory to manual processing of the check by key entry personnel;

after transporting the check to the reject pocket but before a time for manual processing of the check by key entry personnel, digitally processing, using the second set of data, the digital image of the check to identify MICR characters therein, including:

digitally determining MICR characters in the MICR line represented in the second set of data;

determining whether the determined MICR characters represent a valid or invalid MICR line; and

writing the determined MICR characters to the first set of data in response to

determining that the determined MICR characters represent a valid MICR

line, thereby obviating the need for manually processing the check by key

entry personnel.

26. (new) A financial item analysis method, comprising automatically digitally applying

character recognition processing to an invalidated MICR line in a digital image of a financial

item after the financial item has been sent to a reject pocket of a financial item sorter.